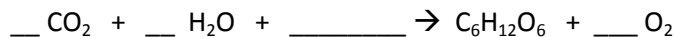


Name: _____

Unit 3 - Bioenergetics

1. What are examples of autotrophs?
2. What are examples of heterotrophs?
3. The most instant form of energy in cells is _____.
4. Where is the energy stored in an ATP molecule?

5. Complete the photosynthesis equation below



6. If the photosynthesis equation is reversed, then it is the formula for _____.
7. The _____ dependent reactions and the light _____ reactions (a.k.a., the _____) make up photosynthesis.
8. Place a "D" if the statement refers to the light dependent reactions and an "I" if it refers to the light independent reactions .

_____ Water is split into oxygen, protons, and electrons.

_____ CO₂ is taken in and converted into carbohydrates.

_____ Light energy is not needed.

_____ Light energy is needed.

9. What initial process during cellular respiration splits a molecule of glucose into 2 3-carbon molecules?

10. What is the NET ATP yield from glycolysis? _____

11. What are the two different types of fermentation? Identify an organism that performs each.

a.

b.

12. Circle: CO₂ is created during **electron transport chain / Kreb's cycle** .

13. In the electron transport chain, oxygen joins with electrons, protons, and hydrogen ions to make _____.

14. By going through glycolysis, the Kreb's Cycle, and electron transport chain, a cell can make between _____ and _____ ATP, as opposed to just the 2 of glycolysis.

15. Photosynthesis/Cellular Respiration Review Chart

	Storing or Releasing Energy?	Organelle?	What type of organisms?	Anabolic or Catabolic?	Produces?
Photosynthesis					
Cellular Respiration					

16. Using a microscope, a student observes a small, green organelle in a plant cell. Which energy transformation **most likely** occurs first within the observed organelle?

- A. ATP to light
- B. light to chemical
- C. heat to electrical
- D. chemical to chemical

17. Photosynthesis and cellular respiration are two major processes of carbon cycling in living organisms. Which statement correctly describes one similarity between photosynthesis and cellular respiration?

- A. Both occur in animal and plant cells.
- B. Both include reactions that transform energy.
- C. Both convert light energy into chemical energy.
- D. Both synthesize organic molecules as end products.

18. A protein in a cell membrane changed its shape to move sodium and potassium ions against their concentration gradients. Which molecule was **most likely** used by the protein as an energy source?

- A. ATP
- B. ADP
- C. catalase
- D. amylase

19. Use the diagram below to complete the following question.

Energy In → Photosynthesis → Energy Out

Energy In → Cellular Respiration → Energy Out

a. Complete the chart below describing energy transformation involved in each process.

Process	Energy Transformations
Photosynthesis	
Cellular Respiration	

b. Describe how energy transformations involved in photosynthesis are related to energy transformations involved in cellular respiration.